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NEONATAL LUPUS SYNDROME:
Report of a Case*

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Neonatal lupus syndrome (NLS) is characterized by the presence of cutaneous lupus, congenital heart block or both associated with maternal autoantibodies anti-Ro (SS-A) and anti-La (SS-B). NLS is responsible for more than 80 percent of cases with isolated congenital complete heart block. This report describes a neonate with third-degree atrioventricular block who was born to an anti-Ro (SS-A) positive mother. The dermatological and hematological manifestations of NLS were absent. The infant's clinical condition was good during the two months of follow-up with expectant management. *Key words: neonatal lupus, congenital heart block.*

Neonatal lupus syndrome (NLS) is characterized by the presence of cutaneous lupus or congenital heart block in an infant whose mother has connective tissue disease or the autoantibodies anti-Ro (SS-A), anti-La (SS-B), or anti-U1RNP[1]. The annular and erythematous skin lesions in NLS generally appear within the first two months of life and resemble the adult skin lesions of subacute cutaneous lupus erythematosus[2]. Associated hematologic and hepatic abnormalities have also been reported, but are not considered an essential component of the syndrome[3,4]. Except for congenital heart block, the disease resolves with the clearance of the maternal antibodies by the sixth to eighth month of postnatal life.

NLS is responsible for more than 80 percent of cases with isolated congenital complete heart block (CCHB)[5]. The heart block appears during the second half of pregnancy. Although CCHB is compatible with normal life, fetal hydrops, in utero or neonatal deaths may occur. In this report, we describe a neonate with CCHB associated with anti-Ro (SS-A) antibodies, and we discuss current concepts in the prenatal and postnatal management of this rare entity.

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Case Report

This was the first pregnancy of a 26-year-old healthy woman. She was referred to our hospital because of fetal bradycardia in her 33rd week of gestation. Apart from this findings her pregnancy was noted to be unremarkable.

At the time of her presentation, sonography revealed normal cardiac anatomic findings. However, fetal bradycardia of 60-70 beats/min was noted, suggesting isolated CCHB.

The clinical findings and routine blood tests of the mother were normal. Other laboratory tests for connective tissue disease included negative results for ANA, anti-DNA and anti-La (SS-B), but positive results for rheumatoid factor and anti-Ro (SS-A) antibodies (106 IU/ml by ELISA). The IgM antibodies for cytomegalovirus, rubella and toxoplasma were all negative. Fetal echocardiography revealed normal cardiac contractility and size. There was no pericardial effusion. In serial ultrasound scans during follow-up, breathing movements and fetal tone were normal, and the signs for hydrops were absent. In the 37th week of gestation, a cesarean section was performed because of oligohydramnios.

This male baby was 45 cm in length and 2550 g in weight. The Apgar scores were 8 and 9 at one and five minutes, respectively. The heart rate was 64 beats/min, and a pansystolic murmur of 2/6 was heard at the left sternal border. Neither skin lesions nor purpura was observed. The other organ system findings were normal.

Laboratory studies revealed hemoglobin 19 g/dl, white blood cells 15.100/mm^3 with 48% neutrophils, 50% lymphocytes and 2% bands. Platelets were normal in the peripheral smear. Blood sugar, electrolytes, SGOT and SGPT were within normal limits. Anti-Ro (SS-A) antibodies were positive (101 IU/ml), but anti-La antibodies were negative. EKG indicated third-degree atrioventricular (AV) block with a heart rate of 68 beats/min. The chest X-ray showed no cardiomegaly. During six days of follow-up at the hospital, the infant's condition did not change. The daytime heart rates were greater than 50 beats/min. During his first month of life, the holter monitoring revealed heart rates ranging from 42 to 80 beats/min, with a mean of 62 beats/min (Fig. 1). During the two months of follow-up, the infant's clinical condition did not change.

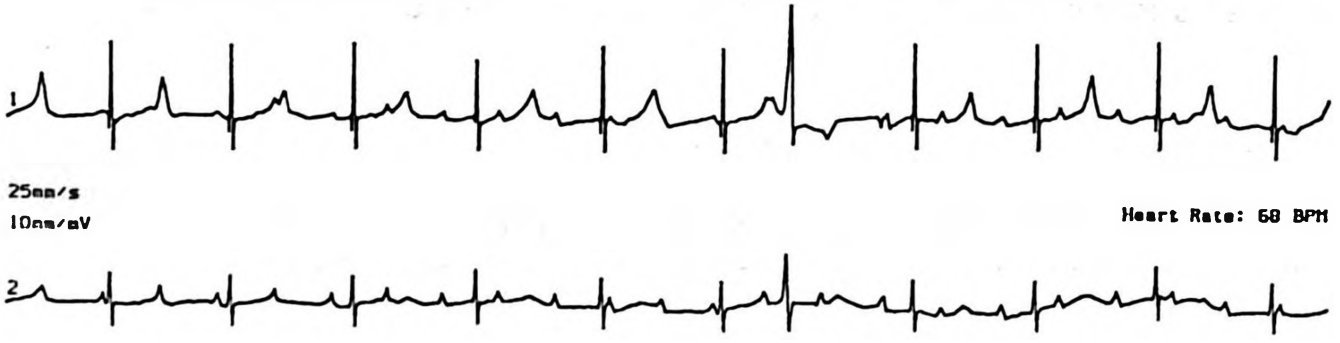

Fig. 1: Third-degree atrioventricular block.

Discussion

The pathogenesis of NLS is presumed to be related to the transplacental passage of maternal autoantibodies anti-Ro (SS-A) and anti-La (SS-B), which are found almost exclusively in connective tissue diseases. Depending on the method, the frequencies of these antibodies vary in controls and in patients with connective tissue diseases. Anti-Ro (SS-A) antibodies are found in more than 40 percent of Sjögren's syndrome patients, 25 to 30 percent of systemic lupus erythematosus (SLE) patients and 5 percent of rheumatoid arthritis patients[5]. Anti-La (SS-B) is not as common as anti-Ro (SS-A). These antibodies, however, are found in only 0.44 to 2.0 percent of the normal population[1].

Anti-Ro (SS-A) and anti-La (SS-B) antibodies are also found in more than 80 percent of mothers of infants with CCHB. The antibodies in human fetal heart tissue and immunoglobulin deposition in a neonatal lupus heart have been demonstrated[6, 7]. In a recent study, inhibition of cardiac repolarization by anti-Ro (SS-A) antibodies was observed[8]. Despite this evidence, the low incidence of NLS in infants born to anti-Ro (SS-A) positive mothers (10%)[9], and the discordance of disease expression in twins and in subsequent pregnancies, raise the possibility of other factors including HLA alloantigen classes, the host response, and environmental etiologies. These antibodies, then, may be necessary, but not sufficient to cause NLS.

Although these antibodies are found mostly in women with connective tissue diseases, mothers of infants with NLS are usually asymptomatic. Connective tissue disease may develop later in these initially asymptomatic mothers[4]. Our patient's mother was also asymptomatic and her laboratory tests were negative other than rheumatoid factor. However, she was advised to be checked regularly.

For infants with skin manifestations alone, the prognosis is excellent and no treatment is necessary. However, for infants with CCHB, the mortality is significant. Therefore, the prenatal and postnatal management is important.

The enviroment in utero is preferred as long as possible because of low circulatory resistance. Treatment is not necessary in cases without fetal cardiac failure.

However, the presence of ascites, pericardial effusion or hydrops requires more active management. Intrauterine therapeutic regimens, including dexamethasone, which is not metabolized by the placenta and is available to the fetus in an active form, and plasmapheresis have been tried[10, 11]. Unfortunately, heart block could not be reversed by these therapies. In our case, the initial echocardiography and ultrasound scan did not indicate cardiac failure. Expectant management was judged to be safe. In fact, our patient was normal at birth, other than bradycardia.

Although CCHB is usually well tolerated, it is sometimes associated with syncope or sudden death. Prophylactic pacemaker insertion is indicated in selected patients with CCHB. Ventricular rate has been emphasized as the most sensitive means of selecting patients for pacing. Rates of less than 50 beats/min for neonates and 40 beats/min for older infants have been advocated as cutoffs.. Recent studies indicate that ventricular rate alone is not the best index. The presence of symptoms, cardiomegaly, a wide QRS or a prolonged QT interval, evidence of junctional instability and decreased ventricular function by echocardiography are the additional advocated guidelines[12, 13]. Our case is two months old now, and none of the above criteria is present. We plan to monitor him at six-month intervals.

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